

Remarks

In the final Office Action dated October 2, 2008, claims 1-16 are pending. All claims stand finally rejected. The Applicants have amended claims 1-16 and have added new claims 17-18 in this Response. This Response accompanies a Request for Continued Examination under 37 CFR § 1.136(a). The Applicants respectfully traverse the rejections set for by the Examiner.

35 USC § 102 Rejection

The Examiner has rejected claims 1-2, 5-8, 11-13, and 16 under 35 U.S.C. § 102(b) as being anticipated by US Patent Number 5,097,518 (Scott). The Applicants submit that claims 1-2, 5-8, 11-13, and 16 are novel over Scott.

Claim 1 recites a method of scaling a halftone image using error diffusion. According to the method, a first matrix of $n \times m$ pels is identified in a halftone image. An average intensity of the first matrix of pels is calculated. A second matrix of $(n+1) \times m$ pels is generated from the first matrix of pels by inserting a line of pels in the first matrix of pels. Additionally, a scaled output matrix of $(n+1) \times m$ pels is generated from the second matrix of pels by assigning new pel values to each pel in the line of pels using an error diffusion process, where the average intensity of the scaled output matrix of pels is substantially unchanged from the average intensity of the first matrix of pels. The previous steps are performed for each unidentified matrix of $n \times m$ pels in the halftone image to generate a scaled output of the halftone image.

The Applicants submit that Scott does not teach identifying an $n \times m$ matrix of pels in the halftone image and generating a scaled output matrix of $(n+1) \times$ pels by assigning new pel values using an error diffusion process, where the average intensity of the scaled output matrix is substantially unchanged from the identified matrix.

Scott discloses a method of image scaling using pixel repetition from a source image to a scaled destination image. Scott discloses that "each pixel in the original image is replicated to form a corresponding block of pixels in a destination (enlarged) image (Summary; Column 15, lines 15-19)." In Scott, an input block of pixels is copied to generate a scaled output block of replicated pixels. The output blocks of pixels vary in sized based on the amount of image enlargement. For example, in order to enlarge a digital image, the output blocks of pixels are larger than the input blocks. In order to fill in the missing lines of pixels in the output blocks,

each missing pixel in the output block is set to a value from the input block of pixels from the original image. Scott discloses this in Column 21, lines 45-51 when reciting "Step 643, when performed, performs pixel replication by setting the value of the current pixel in the current pixel block in the enlarged image, OUTPUT [OUTPUT-X, OUTPUT_ Y] to the value of the current pixel in the original image, INPUT [INPUT-X, INPUT-Y]." Step 643 is additionally illustrated in FIG. 6C. The Applicants submit that there is no teaching in Scott that step 643 performs an error diffusion process when setting the output pixel values. Instead, Scott discloses that the output value for the output block is the same value as the current pixel in the original image. The Applicants further submit that Scott does not teach that the output blocks have substantially the same average intensity of the input blocks. For example, there is no teaching in Scott that setting the output pixel values in step 643 is based on average intensities of the input and output blocks.

The Applicants therefore submit that claim 1 is novel in view of Scott. Independent claims 7 and 13 are novel for at least the same reasons. Dependent claims 2, 5-6, 8, 11-12, and 16 are novel at least for depending on novel base claims. Similar arguments apply for new claims 17-18.

35 USC § 103 Rejection

The Examiner has rejected claims 3-4, 9-10, and 14-15 under 35 U.S.C. 103(a) as being obvious over Scott in further view of US Patent Number 6,563,957 (Li). The Applicants submit that the claims are non-obvious in view of the combination of Scott and Li for at least the reasons provided above.

Conclusion

The Applicants submit that claims 1-18 are novel and non-obvious in view of the cited art, and respectfully ask the Examiner to allow claims 1-18.

Respectfully submitted,

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